

CARRIAGE BY AIRCRAFT



6B-01-10/99

PART 175

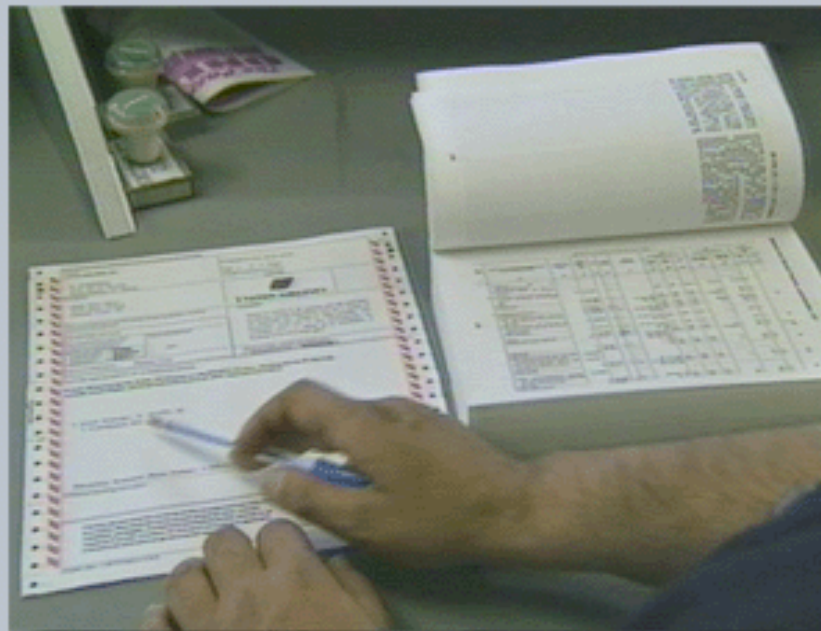
Carriage by Aircraft

In addition to:

- Part 171**
- Part 172**
- Part 173**

SUBPART A

○ General Information and Regulations



SUBPART B

○ Loading, Unloading, and Handling



6B-04-10/99

SUBPART C

○ Specific Regulations Applicable According to Classification of Material



ALL US & FOREIGN CARRIERS MUST COMPLY WITH 49 CFR, SUBCHAPTER C



ICAO TECHNICAL INSTRUCTIONS

- Shipments may be prepared in accordance with ICAO Technical Instructions.
- Additional Requirements in 49 CFR 171.11 must also be met.

TRAINING OF HAZMAT EMPLOYEES

- Initial training required within 90 days
- DOT requires retraining and testing
AT LEAST every 3 years
- FAA (14CFR) requires ANNUAL training
for air carrier employees
- Training records must be maintained

TRAINING PROGRAM REQUIREMENTS

- ☐ **General awareness/familiarization**
- ☐ **Function specific**
- ☐ **Safety**

SHIPMENT PREPARATION AND ACCEPTANCE

- Air carrier relies on shipper for compliance
 - Shipping papers
 - Package markings and labels
- Air carrier MUST verify that packages and shipping documents are prepared properly

SHIPPER RESPONSIBILITIES

- Classify hazardous material
- Determine if regulated for air transportation and quantities authorized
- Describe material on shipping documents
- Package material properly
- Mark & label package
- Determine placarding requirements

AIR CARRIER RESPONSIBILITIES

- **Material is authorized & within quantity limitations**
- **Content & accuracy of shipping papers**
 - **Description of material**
 - **Emergency response information**
 - **Shipper certification**
 - **In duplicate**

AIR CARRIER RESPONSIBILITIES

- ☐ **Packages - marked, labeled, placarded**
- ☐ **"CARGO AIRCRAFT ONLY" labeled**
- ☐ **Package condition**

USING OVERPACKS

- **Shipping name, ID number, & markings on inside packages visible or reproduced**
- **Labels on inside packages visible or reproduced**
- **Statement on overpack that packages comply with regulations**
- **"CARGO AIRCRAFT ONLY" limitations**

REFUSE IMPROPERLY PREPARED PACKAGES!



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NOTIFICATION OF HAZMAT RESTRICTIONS



Notification

AIR CARGO FACILITIES NOTIFICATION



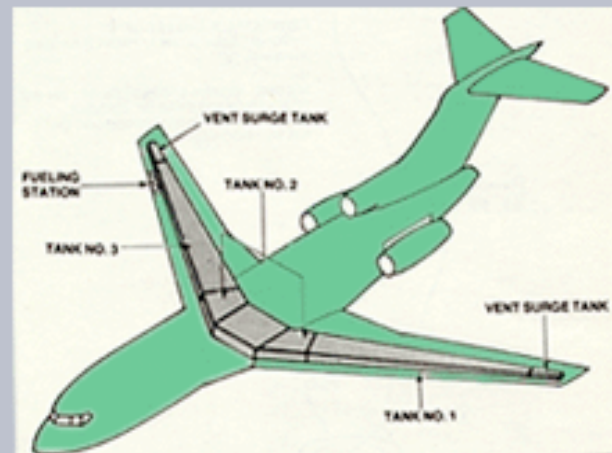
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NO HAZMAT IN CABIN OR ON FLIGHT DECK, EXCEPT:

- ☐ **Required for safe operation of aircraft**
- ☐ **Personal use of passengers & crew**
- ☐ **Use in "Specialized Air Operations"**
- ☐ **For medical needs of passengers or crew**
- ☐ **Miscellaneous exceptions**

HAZMAT FOR SAFE OPERATION OF AIRCRAFT

- Aviation fuel & oil in tanks required to operate the aircraft
- HAZMAT required to make the aircraft airworthy
 - Fire extinguishers
 - Oxygen generators
 - Escape chutes
 - Life rafts



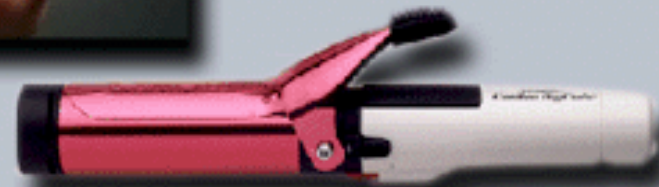
REPLACEMENTS

- Aircraft spares and supplies must be packaged equivalent to level required by 49 CFR
- Aircraft batteries not subject to quantity limitations
- A serviceable tire may not be inflated above maximum rated pressure



PERSONAL USE MATERIALS

- Nonradioactive medicinal & toilet articles
- Personal smoking materials
- Butane curling irons



PERSONAL USE MATERIALS

- Small arms ammunition
- Duty free alcohol
- Dry ice



"THESE FLY... THESE MAY NOT"



SPECIALIZED AIR OPERATIONS

- Materials used for aerial seeding, dusting, spraying, fertilizing, crop improvement, or pest control**
- Smoke grenades and flares for parachuting**
- Pyrotechnics for air shows**
- Materials for weather control, environmental restoration and protection**

MEDICAL NEEDS

- Oxygen (or generator) for medical use by passenger
- Implanted medical devices
- Wheelchairs
 - Battery disconnected
 - Terminals insulated
 - Battery securely attached or in strong packaging

MEDICAL NEEDS

- Non-spillable batteries
 - Protect battery
 - Package securely
 - Must be capable of passing tests
- Vibration
- Pressure differential
 - Mark "Non-Spillable" if mfg. after 9/30/95

MEDICAL NEEDS

- **Spillable batteries**
 - **Require absorbent material**
 - **Label package "Corrosive"**
 - **Mark package**
 - **Notify pilot**

MISCELLANEOUS EXCEPTIONS

- Dry ice used for food and beverage service on the aircraft
- Alcohol, perfumes, and colognes carried for sale on the aircraft
- Small medical thermometer
- Weather agency barometer



PASSENGER CARRYING AIRCRAFT



CARGO AIRCRAFT



FORBIDDEN

- **Some materials are forbidden on passenger aircraft**
- **Some materials are forbidden on all aircraft**

MAGNETIC FIELD

- More than 0.00525 Gauss
- 4.5 meters (15 feet)**
- From any surface of the package**

QUANTITY LIMITATIONS

Special provisions (7)	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stowage	
	Excep- tions (8A)	Non- bulk (8B)	Bulk (8C)	Passenger aircraft/rail (9A)	Cargo air- craft only (9B)	Loca- tion (10A)	Other (10B)
A8, A19, A20	152	212	242	5 kg	25 kg	A	56, 58, 106
	None	212	241	15 kg	50 kg	C	
	None	187	244	Forbidden	Forbidden	C	
		

PACKAGING



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Classes 4, 5, and 8



PREVENT LEAKAGE



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PACKAGING FOR LIQUIDS



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COMBINATION PACKAGING

Pressure requirements

**If inner container does not meet
then outer container must meet**

PACKAGES MUST BE SECURELY CLOSED

- **Friction type closures**
- **Screw type closures**



INNER CONTAINER OF GLASS OR EARTHENWARE



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ABSORBENT MATERIAL NOT REQUIRED



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USE OF LINERS



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PG I ON PASSENGER AIRCRAFT



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PG I - CARGO AIRCRAFT

PG II - PASSENGER AIRCRAFT



QUANTITY LIMITATIONS COMBINATION PACKAGING

TABLE 1—MAXIMUM NET CAPACITY OF INNER PACKAGING FOR TRANSPORTATION ON PASSENGER-CARRYING AIRCRAFT

Maximum net quantity per package from Column 9a of the § 172.101 table	Maximum authorized net capacity of each inner packaging	
	Glass, earthenware or fiber inner packagings	Metal or plastic inner packagings
Liquids:		
Not greater than 0.5L	0.5L	0.5L
Greater than 0.5L, not greater than 1L	0.5L	1L
Greater than 1L, not greater than 5L, not greater than 60L, not greater than 220L		
Solids:		
Not greater than 5 kg		
Greater than 5 kg, not greater than 25 kg, not greater than 200 kg		

TABLE 2—MAXIMUM NET CAPACITY OF INNER PACKAGING FOR TRANSPORTATION ON CARGO AIRCRAFT

Maximum net quantity per package from Column 9b of the § 172.101 table	Maximum authorized net capacity of each inner packaging	
	Glass, earthenware or fiber inner packagings	Metal or plastic inner packagings
Liquids:		
Not greater than 2.5L	1L	1L
Greater than 2.5L, not greater than 30L	2.5L	2.5L
Greater than 30L, not greater than 60L	5L	10L
Greater than 60L, not greater than 220L	5L	25L
Greater than 220L	No limit	No limit
Solids:		
Not greater than 15 kg	1 kg	2.5 kg
Greater than 15 kg, not greater than 50 kg	2.5 kg	5 kg
Greater than 50 kg, not greater than 200 kg	5 kg	10 kg
Greater than 200 kg	No limit	No limit

§172.101 HAZARDOUS MATERIALS TABLE

(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stow- age	
Excep- tions (8A)	Non- bulk (8B)	Bulk (8C)	Passenger aircraft/rail (9A)	Cargo air- craft only (9B)	Loca- tion (10A)	Other (10B)
150	202	242	5 L	60 L	B	40
.....		
.....		
.....		
.....		
154	203	241	5 L	60 L	A	40
.....		
.....		

Benzene, 3, UN1114, II

CYLINDER PROTECTION



CARGO TANKS & TANK CARS



VENTING OF PACKAGES

- Venting to reduce internal pressure is not permitted**

CARGO AIRCRAFT ONLY



QUANTITY LIMITATIONS



RADIOACTIVE MATERIALS



No Limit



50 T.I. max - passenger aircraft
200 T.I. max - cargo aircraft

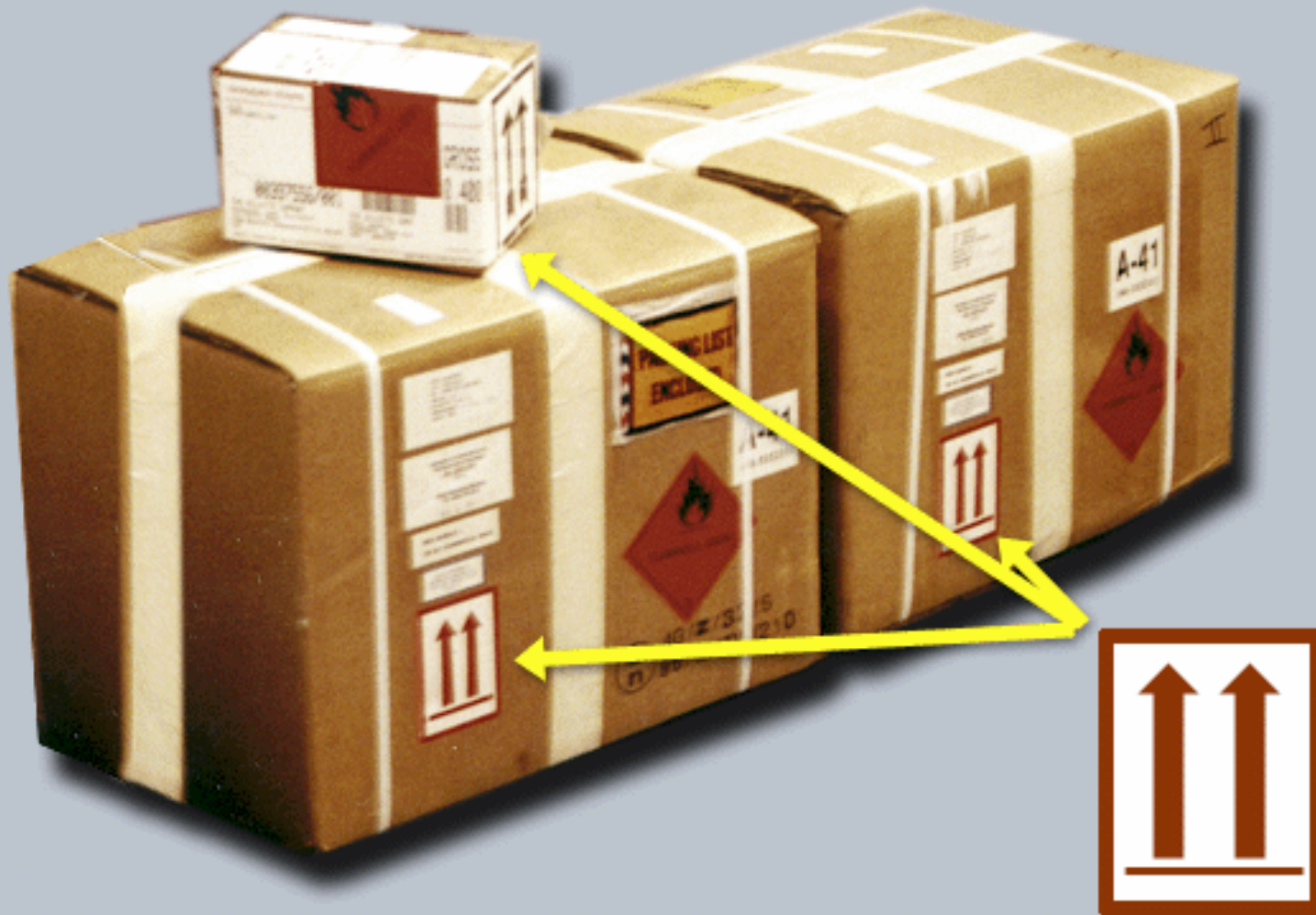


NO LIMITS



Class 9
ORM-D materials

ORIENTATION ARROWS



MOVEMENT RESTRICTED



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STOWAGE COMPATIBILITY

TABLE 1

	A	B	C	D	E	F	G
A Explosives and Blasting Agents or ICAO Class 1	Note 3	Note 4	Note 4	Note 4	Note 4	Note 4	X
B Compressed gases or ICAO Class 2	Note 4	.....	.....	.....	.....	.....	.....
C Flammable liquids or ICAO Class 3	Note 4	.....	.....	.....	.....	X	.....
D Flammable liquids and solids (labeled SPONTANEOUSLY COMBUSTIBLE) or ICAO Division 4.2	Note 4	.....	.....	.....	.....	X	X
E Flammable solids (labeled DANGEROUS WHEN WET) or ICAO Division 4.3	Note 4	.....	.....	.....	.....	X	X
F Oxidizers or ICAO Division 5.1 and Organic peroxides or ICAO Division 5.2	Note 4	.....	X	X	X	.....	X
G Corrosive materials or ICAO Class 8	X	.....	.....	X	X	X	.....

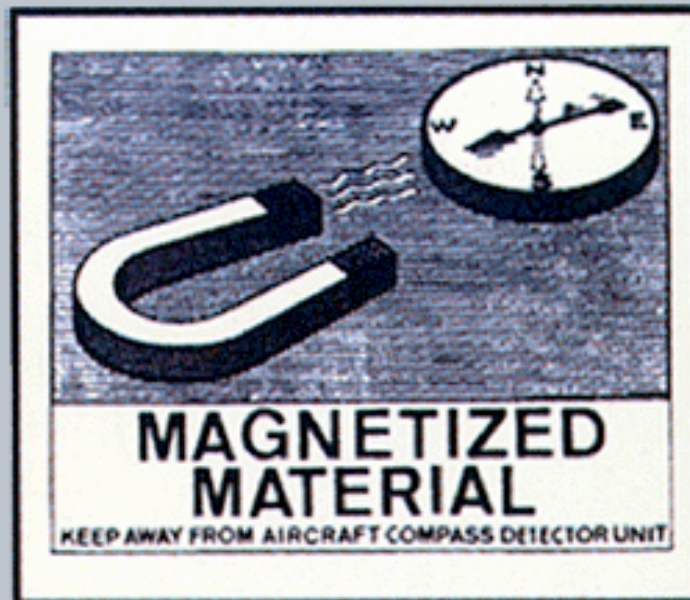
Note 1: The letters across the top of the table have the same meaning as the letters along the left side of the table.

Note 2: An "X" at the intersection of a row and a column in the table means that packages containing the indicated classes of hazardous materials may not be stowed next to or in contact with each other, or in a position which would allow interaction in the event of leakage of the contents.

Note 3: For import or export shipment, explosives other than explosives of ICAO Division 1.4, Compatibility Group S, that do not belong to the same compatibility group according to the ICAO Technical Instructions may not be stowed together, except that compatibility groups C, D and E may be stowed together. Explosives of ICAO Division 1.4, Compatibility Group S may be stowed with explosives of all compatibility groups with the exception of A and L.

Note 4: Explosives, other than safety explosives (ICAO Division 1.4, Compatibility Group S) must not be stowed together with this class.

MAGNETIZED MATERIAL



LOADING HAZMAT

- Main deck cargo compartment inaccessible to passengers
- Meets certification requirements for Class B compartment



CARGO AIRCRAFT ONLY

- Load material so that crew can**
 - See**
 - Handle**
 - Separate from other cargo**

EXCEPTIONS

- May be carried in inaccessible cargo compartment
 - Class 7 (Radioactive)
 - Division 6.1, except **FLAMMABLE**
 - Division 6.2
 - Class 3 with flashpoint above 23°C (73°F)
 - Class 9 & ORM-D

AIR TRANSPORT

when its the only means of transport

- **Procedures must be in writing**
- **Approval required from**
 - FAA Air Transportation Security Field Office or**
 - FAA Air Transportation Security Division**



OTHER EXCEPTIONS

- Small, single pilot, cargo aircraft because other means impractical or unavailable
- Limited personnel on aircraft
- Written instructions to pilot on characteristics and handling of materials
- If pilot changes, new pilot briefed

PILOT NOTIFICATION

Net Quantity /
Gross Weight

PILOT NOTIFICATION FOR DANGEROUS GOODS

UNITED AIRLINE

DISTRIBUTION: Copy 1 - To Flight Captain
Copy 2 - Station File Copy (00)
Copy 3 - Shipper

COPY 1 - TO FLT CAPTAIN

Shipping Name

PIT Number

Number of Packages

Hazard Class

Signature

BOARDING STATION		FLIGHT DATE		SHIPPER'S EMERGENCY RESPONSE		DISTRIBUTION		UNITED AIRLINE	
IAD		10/2/18		1-800-555-4345		Copy 1 - To Flight Captain Copy 2 - Station File Copy (00) Copy 3 - Shipper		COPY 1 - TO FLT CAPTAIN	
H-CODE	NR PKG	TYPE PKG	GROSS WT	NET QTY PER PKG	TTL NET WT	LIQ VOL	FINAL DEST	PROPER SHIPPING NAME	CLASS / SUB-RISK
H-1	1	FIBER BOX	15 LBS	1	2 LB	1 LITER	MCI	ACETONE	3
RFL							ORD	UN 1090	II
									PACKING GROUP NR
									CLASS / COMPATIBILITY GROUP
									N/A
RADIOACTIVE MATERIAL									
RADIOACTIVE MATERIAL, N.O.S.					RADIOACTIVE MATERIAL, SPECIAL FORM, N.O.S.				
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, N.O.S.					RADIOACTIVE MATERIAL, FISSILE, N.O.S.				
HEIGHT OF TALLEST PACKAGE IN SHIPMENT					INCHES				
CLASS LABEL					H-CODE				
RADIOACTIVE WHITE I					H-4				
RADIOACTIVE YELLOW II					H-5				
RADIOACTIVE YELLOW III					H-6				
STATION					TIME				
IAD EFWA					1130491 0945				
CAPTAIN'S SIGNATURE					CAPTAIN PLEASE NOTE: Pit location must be indicated. If crew change enroute, manifest for through shipments must be left on map holder for new Captain.				
AIRCRAFT LOADED BY					PIT NUMBER				
OVAL					15				

DISCREPANCIES

- ☐ **Materials not properly described, certified, packaged, marked, or labeled**
- ☐ **Packages exceed quantity limitations**
- ☐ **Hazardous materials not described or certified as such on shipping papers**
- ☐ **Unauthorized inside containers or improper closures**

DISCREPANCIES (cont.)

- ☐ Inside containers not oriented as shown on package
- ☐ Insufficient/improper absorbent material
- ☐ Undeclared/hidden shipments



**Notify the nearest
FAA Civil Aviation
Security Office
if a discrepancy is
discovered
after acceptance**

INCIDENT REPORTING

DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIALS INCIDENT REPORT		Form Reissued 03/98 by DOT 0001
INSTRUCTIONS (ONLY): Submit this report in duplicate to the Information Systems Manager, Office of Hazardous Materials Transportation, (OSMT), Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590. If space provided for any item is inadequate, complete that item under Section 10, listing the excess number being completed. Copies of this form, in limited quantities, may be obtained from the Information Systems Manager, Office of Hazardous Materials Transportation. Additional copies in this prescribed format may be reproduced and used, if on the same size and kind of paper.		
1. MODE, STATE, AND LOCATION OF INCIDENT		
1. MODE OF TRANSPORTATION: <input type="checkbox"/> AIR <input type="checkbox"/> HIGHWAY <input type="checkbox"/> RAIL <input type="checkbox"/> WATER <input type="checkbox"/> OTHER _____		
2. DATE AND TIME OF INCIDENT: Date: MONTH / DAY / YEAR (e.g. 12/24/98) _____ DAY _____ TIME _____ (Note: a 24-hour day = 2400 hours; 2400 = 2400 hours; 2400 = 2400 hours)		
3. LOCATION OF INCIDENT: (include a specific name if applicable; if no name, include a street name) CITY _____ STATE _____ COUNTY _____ ROUTE/POST _____		
2. IDENTIFICATION OF SHIPPER, CARRIER OR INDIVIDUAL RESPONSIBLE		
A. FULL NAME _____		B. ADDRESS (Principal place of business) _____
C. LAST FOUR DIGIT MOTOR CARRIER LICENSE NUMBER, REPORTING NATIONAL ALPHABETIC CODE, VEHICLE PLATE NUMBER, AND U.S. DEPARTMENT OF TRANSPORTATION LICENSE NUMBER _____		
3. SHIPMENT IDENTIFICATION (If from Shipping Paper or Packaging)		
1. SHIPPER NAME AND ADDRESS (Principal place of business) _____		2. COMMODITY NAME AND ADDRESS (Principal place of business) _____
3. VEHICLE LICENSE NO. of vehicle from proper address _____		
4. VEHICLE REG. NO. ADDRESS of vehicle from Consignor address _____		
5. SHIPPING PAPER OR PACKAGING IDENTIFICATION NO. _____		
4. HAZARDOUS MATERIALS INVOLVED (NOTE: RECORD ONE WITH SECTION 10, 20, 30, 40)		
10. PROPER SHIPPING NAME _____	11. CHEMICAL TRADE NAME _____	12. HAZARD CLASS _____
13. IDENTIFICATION NUMBER (e.g. UN 1234 56 789) _____		14. IS MATERIAL A HAZARDOUS SUBSTANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO
15. IF HAZARDOUS SUBSTANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO		16. IF HAZARDOUS? <input type="checkbox"/> YES <input type="checkbox"/> NO
5. CONSEQUENCES OF INCIDENT, DUE TO THE HAZARDOUS MATERIAL		
17. ESTIMATED QUANTITY OF HAZARDOUS MATERIAL RELEASED (include units of measurement) _____		18. FATALITIES _____
19. NUMBER OF PEOPLE INJURED _____		20. PERSONS KILLED _____
21. ESTIMATED DOLLAR AMOUNT OF LOSS AND/OR PROPERTY DAMAGE, INCLUDING COST OF DECONTAMINATION OR CLEANUP (Amount in \$) _____		
A. PROPERTY LOSS _____	B. CARRIER DAMAGE _____	C. PUBLIC/PRIVATE PROPERTY DAMAGE _____
D. DECONTAMINATION/CLEANUP _____		E. OTHER _____
22. CONSEQUENCES ASSOCIATED WITH THE INCIDENT: <input type="checkbox"/> AIR/RAIL GASES DISPERSION <input type="checkbox"/> MATERIAL ENTERED WATER/NEARBY WATER <input type="checkbox"/> SPILLAGE <input type="checkbox"/> FIRE <input type="checkbox"/> EXPLOSION <input type="checkbox"/> ENVIRONMENTAL DAMAGE <input type="checkbox"/> NONE <input type="checkbox"/> OTHER _____		
6. TRANSPORT ENVIRONMENT		
23. INDICATE THINGS OF INTEREST INVOLVED: <input type="checkbox"/> CRASH TRUCK <input type="checkbox"/> VAN TRUCK/HAULER <input type="checkbox"/> FLAT BED TRUCK/HAULER <input type="checkbox"/> TRAILER CAR <input type="checkbox"/> RAIL CAR <input type="checkbox"/> TANKER/SHIP <input type="checkbox"/> AIRCRAFT <input type="checkbox"/> BARGE <input type="checkbox"/> SHIP <input type="checkbox"/> OTHER _____		
24. TRANSPORTATION PHASE DURING WHICH INCIDENT OCCURRED (IF WAS OCCURRED): <input type="checkbox"/> EN ROUTE BETWEEN SHIPMENT ORIGIN/DESTINATION <input type="checkbox"/> LOADING <input type="checkbox"/> UNLOADING <input type="checkbox"/> TEMPORARY STORAGE/STORAGE		
25. LAND USE OF INCIDENT SITE: <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> HIGHWAY/RAIL <input type="checkbox"/> UNDEVELOPED		
26. COMMUNITY TYPE AT SITE: <input type="checkbox"/> URBAN <input type="checkbox"/> SUBURBAN <input type="checkbox"/> RURAL		
27. WAS THE SPILL THE RESULT OF A VEHICLE ACCIDENT/DAMAGE? <input type="checkbox"/> YES <input type="checkbox"/> NO		
28. IF YES AND APPLICABLE, INCIDENT PARTY'S NAME: _____		
A. ESTIMATED SPEED _____	B. VEHICLE TYPE: <input type="checkbox"/> OFFROAD/RAIL MODELS <input type="checkbox"/> ONROAD <input type="checkbox"/> OTHER _____	C. TOTAL NUMBER OF LINES: <input type="checkbox"/> ONE <input type="checkbox"/> THREE <input type="checkbox"/> TWO <input type="checkbox"/> FOUR OR MORE
D. DATE AND TIME OF INCIDENT: _____		

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REPORTABLE INCIDENTS

FAA Civil Aviation Security Office or Center for Disease Control, if applicable; when due to hazardous materials:

- ☐ Death, or injury requiring hospitalization
- ☐ Damage greater than \$50,000
- ☐ Change in flight pattern or routine of an aircraft
- ☐ Shutdown of major facility or transportation artery
- ☐ Evacuation of public

RELEASE OF HAZMAT



6B-69-10/99

CLASS 7 INCIDENTS

The carrier must notify the shipper of

- Incident involving breakage or spillage**
- Suspected radioactive contamination**

A dark blue night sky filled with numerous white stars of varying sizes. A large, bright crescent moon is positioned in the upper right corner. The text "THE END" is centered in a bold, orange, sans-serif font with a black outline.

THE END